991505

[redacted]

December 23, 1966

STATINTL

[redacted]

Dear George:

Enclosed are four (4) copies of a brief memo regarding a system for processing photo data. Some of the sub-blocks within the Data Processor Package do not exist and others exist which are not listed. That particular block should ultimately contain perhaps 30-40 programs.

The structure is a common one. [redacted] Fortran II, for example, operates under a mini-monitor within the 1620 monitor and the system is ideal for multiple task jobs. The system recommended is almost an absolute necessity, in my opinion, due to the production nature of your computer installation. STATINTL

Please look this over and let me know what you think. I will be in contact with you soon.

STATINTL

Also enclosed are (1) a listing of a program called [redacted] and (2) a deck for same. The program is written in FORTRAN IV for NCR 315 and would require minimum change to meet 490/494 specifications. We estimate a few man-hours to do the job. The subroutine CDTK (KRD, TRK) simply thumbs its way through the CRAM file and is unnecessary for some other system. If there are any other questions, please call. Also, by the way, note that $ in 315 FORTRAN is equivalent to ' in 360 FORTRAN or "nH" in most [redacted] specifications. STATINTL

[redacted]

Best wishes, George, for the coming year and for a fine Christmas.

Regards,

[redacted] STATINTL

Vice-President
Research and Engineering

JDF:jp

Enclosure

STATINTL

[redacted]

991505

SYSTEM CONSIDERATIONS

JS-508

STATINTL

December 19, 1966

STATINTL

In view of the overall circumstances and organizational structure involved with this problem, it is fairly apparent that the type of operation now in existence at both [redacted] STATINTL 25X1A [redacted] and Westover Air Force Base will not satisfy the requirements of the problem. In these installations, the computer is more or less under the direct control of the scientific personnel involved in photographic work, and many such operations are of a priority nature. At [redacted] STATINTL it has been found desirable to develop a specialized programming skill in two or three individuals to accommodate work of this type. The computer is not, however, a part of a continuous on-line system. While this situation is expected to develop in the near future, we expect to operate on a shared-core and on-demand dedicated machine basis for the foreseeable future.

We are presently developing a specialized photographic laboratory (semi-automated) for the Air Force. While software is not a part of the present package, we are proposing a software package which is tailored to the customer's computer environment. The computer system in this case will be the 7044/7094 DCS at Wright-Patterson Air Force Base and the operational philosophy in this case will differ again from any case now under consideration.

There is one common feature between the DCS and the 494 cases, however, and that is the apparent need for a specialized submonitor to accommodate the various types of processing required. The use of such a technique can reduce the effect of

data error, abbreviate the length of the specialized program library, and produce data styled to the output requirements of the customer.

In the case at hand, the microdensitometer is equipped with a typewriter as input device. The simplest mode of operation, therefore, would consist of

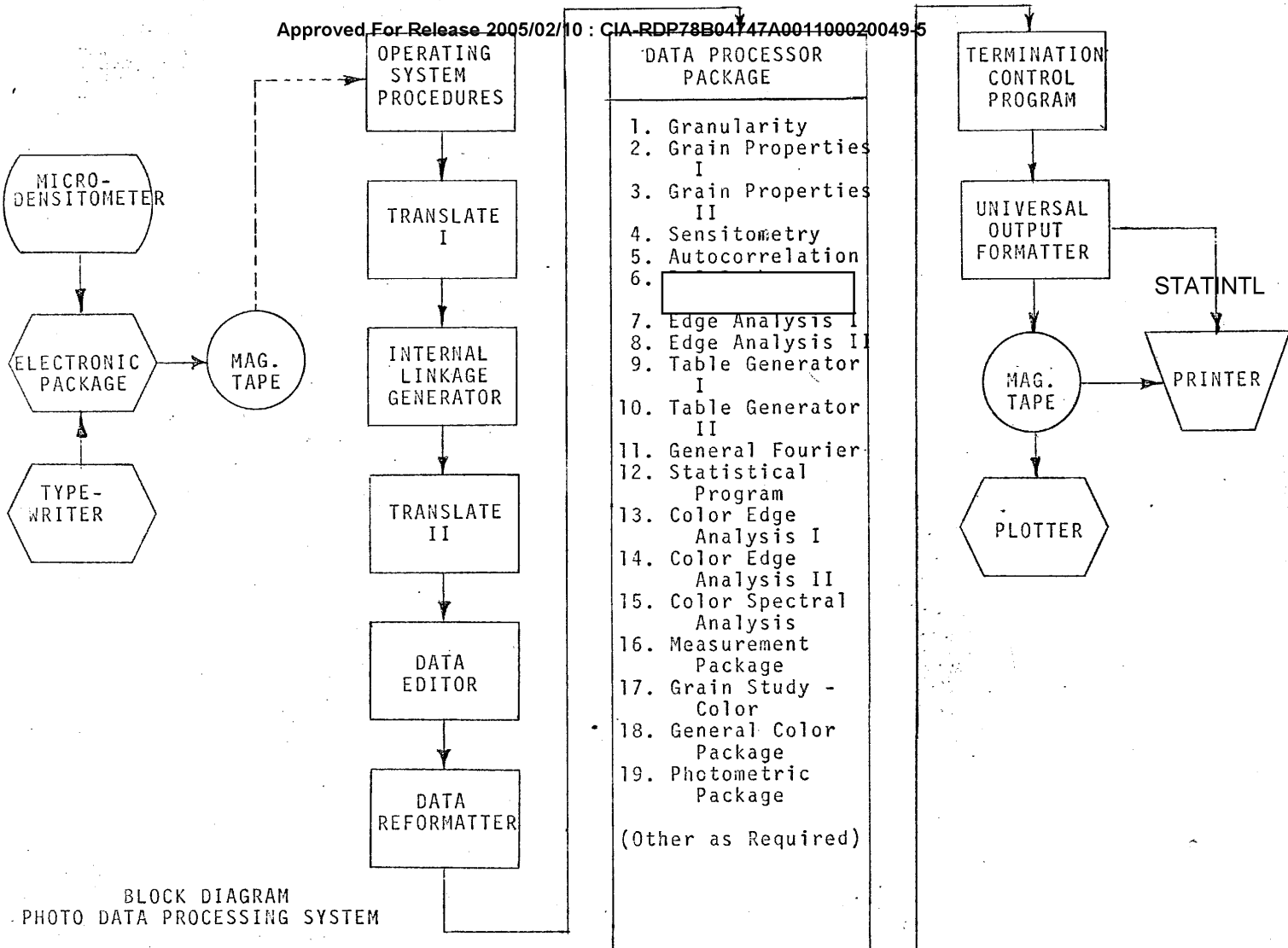
1. Use of normal procedure, control cards, etc., to access the photographic data processing package (PDPP) sub-monitor.
2. Use of the IDENTITY mode input provision on the microdensitometer to specify the processing requirements to the PDPP sub-monitor.
3. Use automatic linkages for each of the various program combinations, e.g., table generator to processor to output writer.

The use of such procedure allows the expansion of the system as required and also permits the inclusion of data editing steps peculiar to the photographic case. In other words, valid data from the standpoint of the computer may be useless if words are dropped, references shift, etc. It is also possible to plan the system such that a universal translation sub-program can be used, and a universal set of output formatter steps applied.

Current programs are designed for batch processing, with most being independent except for common formats in certain cases (table to process to plot). This method of use is probably not satisfactory for the 494 case and will require the development of specialized software along the lines

indicated above.

A general block diagram of the system recommended is shown below. A brief description of the requirements for each sub-program is included following the system diagram. Note that many of the ordinary processing requirements could be met on an interim basis by the use of stand alone Fortran programs. This procedure is not recommended for long term use, however.



BLOCK DIAGRAM
PHOTO DATA PROCESSING SYSTEM

Notes on Block Diagram

Photo Data Processing System

1. Operating System Procedures

I have included in this block all procedures used in normal system operations. This block is outside the sub-monitor.

2. Translate I

This program translates the first ID section of the magnetic tape. The system is designed to be self controlling. It is assumed that as much ID information as required will be placed on the tapes. The ID establishes the operations to be performed and therefore the sub-programs and their sequence. Translate I also reads auxiliary data as required.

3. Internal Linkage Generator

This routine establishes the linkages necessary to run the desired programs in sequence.

4. Translate II

Translate II defines the data format, operational mode (and hence input format) and produces data in some intermediate storage which is in the proper format for processing. At this point, any strictly machine oriented translating steps are also carried out.

5. Data Editor

This program performs strictly subjective data editing, aside from standard system supervisor functions. Checks are strictly program defined, i.e., are concerned with length of records, reasonableness of data, etc., based on subjective criteria. Missing data are treated in particular ways, depending on the nature of the omission.

6. Data Reformatter

At this point, data are prepared for entry into the main program sequence. It is presumed that some special handling will be required, such as grouping of words, etc.

7. Data Processor Package

This package contains all the specialized subprograms, written with a high degree of memory overlap. The package should be expandable at will.

8. Termination Control Program

This portion of the system is concerned with re-initialization where required, missing data problems, end of sub-job, etc.

9. Universal Output Formatter

This program prepares data in the output format appropriate to the subject matter, processing method and type of output desired.

10. Output Devices

This section is dependent on the overall system operating philosophy.